

therefore a corresponding change to the language suggested by the examiner is not being made in claim 21.

In the portion of the last office action which dealt with prior art the examiner has relied upon Hubert et al, Mulder, and newly cited Raftis, which ins not relevant to the claims now presented. After considering the prior art, it has been decided to cancel all claims in the application and submit new claims 19-22 which correspond generally to old claims 16, 15, 17, and 18, respectively. It is submitted that these new claims are clearly not obvious from the prior art.

Initially, the examiner has relied upon the apparatus for applying mold flux as shown in Hubert in combination with Mulder's coating apparatus which applies electrostatically charged powder to workpieces, which apparatus is designed in particular for applying "powder coatings to can interiors and can lids." (Column 1, lines 11-12.) This Mulder prior art is not relevant, and it is respectfully submitted that one working in the metal casting art would not look to the can making art for a solution to mold flux problems. Accordingly, the examiner is respectfully requested to withdraw this grounds of rejection.

Secondly, the combination of Hubert and Mulder simply does not teach the subject matter now being claimed. Thus, claim 19 set forth the combination of "one or more delivery tube assemblies interconnected with the intermediate hopper for feeding of the granular mold flux from the intermediate hopper to the top of

the slab being cast within the continuous casting mold, each delivery tube assembly including a flexible line, and an inline air pump associated with each of said one or more delivery tube assemblies for assuring a positive flow of granular mold flux through the flexible line"; claim 19 further including "means connected to each air pump to control the flow rate of the granular mold flux from the inline air pump to the top of the slab, said means varying the air volume delivered to the air pump." This combination of features is not taught in the prior art. Hubert does not teach an airpump. While Mulder teaches an air pump at 54, it is only operated in an "on" "off" manner via solenoid valve 58. Other differences can be seen from the abstract of Mulder where it is stated:

"An apparatus for spraying powder coating material includes a rotatable turret which moves articles to and from a work station. A powder spray gun is operable to spray a pattern onto each of the articles in turn while the article is at the work station. The powder flows through the spray gun as a series of pulses. A diverter assembly is operable to divert a portion of each pulse of powder away from the nozzle to more sharply define the pulse. An excess powder collector draws a flow of powder away from the work station. A virgin powder container supplies powder to a powder collector container which supplies powder to a powder feed container which supplies powder to the spray gun. Sensors associated with the virgin, collector and feed containers ensure that a predetermined quantity of powder is maintained in each container. During transport of powder from the virgin and collector containers, the containers and their associated pumps are vibrated to facilitate the flow of powder. The powder spray gun is mounted on a three axis adjustment assembly to enable the powder spray gun nozzle to be accurately positioned relative to an article at the work station." (Emphasis added.)

There is nothing in this abstract, or anywhere else in the patent which suggests that means are connected to each air pump to control the flow rate of granular mold flux from an inline air

pump to the top of a slab. Nor is there a teaching of means for varying the air volume delivered to the air pump.

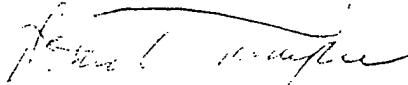
In US 4,987,001, which is incorporated into 5,474,609 it is pointed out that the pump is operated intermittently. Thus, it is stated in '001:

Powder exiting from the fluidizing bed hopper 100 through the outlet conduit 105 enters a venturi pump 114. In accordance with the practice of the invention of this application, air pressure from a source of air pressure through a regulator 115 is pulsed or supplied intermittently to the pump 114 so as to cause powder to be suctioned from the conduit 105 out of the fluidizing bed hopper 100 and propelled through a pipe 116. To further accelerate the air-entrained powder from the pump 114, there is provided downstream of the pump an air amplifier 117. By increasing the speed of the powder through the charging unit 127, the triboelectric charge applied to the powder is correspondingly increased for more efficient application of the powder to the article."

There is nothing in this earlier reference which suggests varying output by varying the volume of air delivered. Accordingly, as this reference, as well as the other references cited by the examiner, totally fail to teach the subject matter of this application, the allowance of all claims now before the examiner is respectfully requested.

As this application is now deemed to be in compliance with 35 USC 112, and free of the prior art, the allowance of this application is respectfully requested.

Respectfully submitted,


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